

LOW EMISSION FORUM, LONDON, 25-02-10 LEEDS UPDATE, LOW EMISSION STRATEGIES

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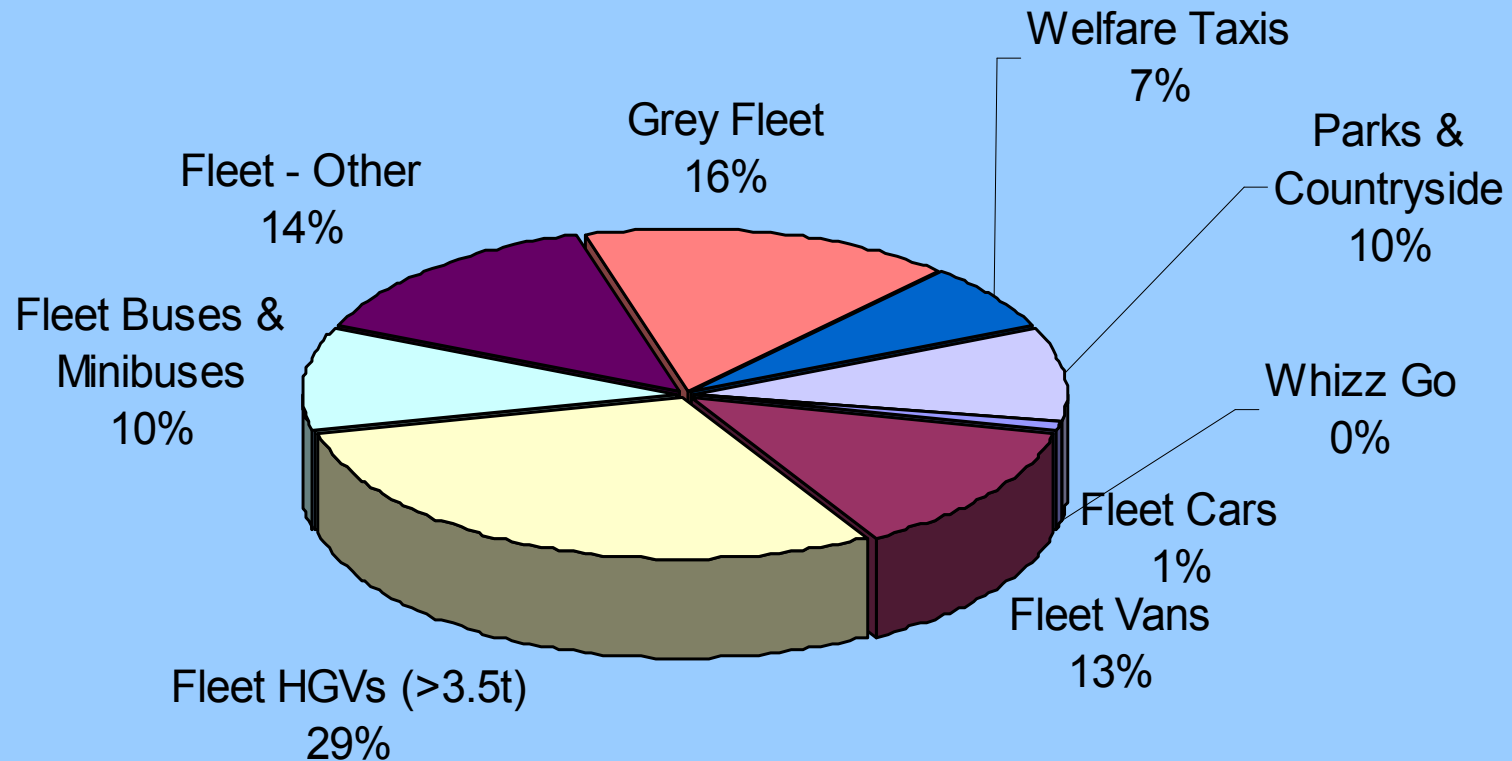


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Leeds City Council Business Transport Carbon Emissions 14,477 Tonnes in 2007



65No. RCV's, 3.5mpg, 1.56 million litres of diesel, emit 4,200 tonnes CO₂



Leeds Biomethane Trial

- 6 Month Technology Demonstration Trial, Cenex funded
- Assessing performance of Dedicated CNG/Biomethane & Dual-Fuel Engine Technology applied to 26 tonne Refuse Collection Vehicles (RCV)
 - Agreed KPI's for 6 month trial, comparison with **Diesel variant**
 - **Chassis Reliability:** (Routine servicing, Breakdown times, Driver defects)
 - **Driver Acceptability:** (Comparison of adverse problems)
 - **10% Reduction in CO2** (Based on fuel consumption)
 - **No increase in Noise:** (Noise monitoring, idling, waste compression)



Dedicated Gas Engine

- **Mercedes Econic 2628LLG 6x2**
- EEV performance
 - Reduced NOx and near zero PM10
 - Approx 60% reduction in CO2 (Biomethane from Surrey)
- Common Application in EU, but first RHD in UK
- 100% reliant upon gas supply
- Disruption due to 11 week strike & poor winter!
- Performing well, although slightly less powerful, but will keep for 3-5 years
- Annual CO2 saving ~32 tonnes WtW (60%)
or, 7.6 tonnes Tailpipe (16%)



Dual Fuel Engine

- **Dennis Eagle** and **Hardstaff** Group Collaboration
- New technology (Oil ignition, gas injection) previously used for long haul duties.
- Retains Original Diesel Engine
 - Uses Engine Management Technology to substitute a percentage of diesel with gas
- Will operate as diesel only if no gas
- Pro-rata reduction of CO₂ and air pollutant emissions, dependant on diesel substitution
- Performance still being assessed, engine needs tweeking for RCV drive cycle (Will keep 3-5 years)



The Leeds Mercedes Econic RCV



Livery on Biomethane RCV's

**Dennis
Eagle Truck
Panel**



**Mercedes
Econic
Truck Panel**



The Trial Refuelling Infrastructure

- ❑ Infrastructure supplied by Hardstaff on HGV trailer
- ❑ Biomethane supplied by Gasrec (Surrey Landfill)
- ❑ Cost of Wet Leasing is expensive!
(But need to prove Biomethane RCV's work)
- ❑ Rather complicated 'Semi Fast fill' system
- ❑ Need to purge, low, med & high pressure systems
- ❑ System works, with practice can refuell in 5/10 mins
- ❑ **Need a gas flow meter!**



Refuelling Infrastructure for Biomethane RCV Trial



Refuelling of Biomethane RCV



Vehicle Procurement Issues

- Gas Technology well proven around the world, but not well supported in UK
- Vehicle premiums can be quite high
 - RCV + £25K (~35% premium)
 - Small van + £3k to +£5k (20-25% premium)
- Existing fuel price differentials suggest pay back for Gas RCV ~3.5 years, aided by high fuel use of RCV. (Assumes 65p/kg, no gas station costs)
- Need to consider 'Whole Life' costs
- Residual Values are untested in UK



Operational Issues

- ❑ The Operation of Gas vehicles involves more than simply purchasing the vehicles
- ❑ Initially requires local main dealer support
- ❑ Longer term, may require in-house workshop alterations and suitable training of Mechanics and Drivers
- ❑ Health and Safety Requirements



Permanent Refuelling Station Chicken and Egg!

- ❑ Reliable operation of vehicles need reliable and secure fuel supply.
- ❑ Investment in refuelling infrastructure can be difficult to justify whilst operating a small No. of RCV's
- ❑ Making the step from a handful of vehicles to a "critical mass" is difficult without suitable refuelling infrastructure.
- ❑ Work needed to understand optimum No. of vehicles, to size of station and best investment strategy.
- ❑ Shall develop a bid for the Grant Infrastructure Prog.
- ❑ Aspiration for setting up strategic refuelling station

Low Carbon Vehicle Procurement Programme (LCVPP)

- The LCVPP aims to accelerate the introduction of lower carbon technologies onto the UK vehicle market.
- Provides the opportunity to demonstrate the real-world performance of low carbon technologies in high profile public sector fleets.
- £20m made available to help organisations meet premium costs of procuring innovative, lower carbon vehicles.
- Under the LCVPP, Leeds will trial:-
 - 16no. Diesel Electric Hybrids (Ashwoods/Ford Transit)
 - 4no. All electric plug ins (Smiths / Ford Transit)
- Will monitor performance & compare with diesel variant



RGI: Leeds City Region Champions for LES

- Jointly managed by Leeds CC & York CC
- Leeds based initiatives will include:-
 - Developing a Leeds City Region 'Plugged in Places' bid, or perhaps teaming up with the opposition! (S Yorks/Sheffield) (Leader of Leeds CC keen on promoting EV's)
 - Promotion of Biomethane for transport, linking up with LCR Partners (Local Authorities, Sainsbury's, GWE Biogas Ltd)
 - Leeds University/ITS remote sensing & emissions monitoring of NOx/NO2 & use if micro-simulation modelling/ congested flow
 - Developing a Template SPD for Air Quality (Leeds & LCR)
 - Joint dissemination Workshop & Vehicle Demonstration



RGI Workshop & Vehicle Demonstration



Other Leeds Initiatives

- **Low Carbon Vehicle Demonstration Handbook**
(Joint Leeds ITS & LCC)
- **LCC Fleet Initiatives:-**
 - Fleet driver training, includes MiDAS & SAFED Eco- driving techniques
 - Use of Masternaut to improve journey planning
 - 6 Welfare Minibus Merc Sprinters, using Eco Stop/Start
 - Customary Mayor's Toyota Prius
 - Tyre pressure sensors
- **Transport for Leeds:** Assessment of 12 Transport Interventions, including detailed LEZ scenarios
- **New Generation Transport** for Leeds, Electric Trolleybuses, regenerative braking & commitment to use Green Electricity

